

SONY

White paper

June 2015



Xperia® Z4v
E6508

Purpose of this document

Sony product white papers are intended to give an overview of a product and provide details in relevant areas of technology.

NOTE: The illustration that appears on the title page is for reference only. All screen images and elements are subject to change without prior notice.

Document history

Version

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Sony Mobile Developer World

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Product overview

Highlights

- 20.7 MP main camera and a 5 MP wide-angle front camera
- Connectivity: Wi-Fi MIMO (up to 867 Mbit/s) and 4G LTE Cat 6 (up to 300 Mbps)
- Audio: Hi-Res Audio, Digital Sound Enhancement Engine (DSEE HX) technology.
- Gaming: PS4™ Remote Play, Snapdragon 810 Octa-core 64 bit processor for speed, Wi-Fi MIMO for PS4® connectivity.
- Design: Capless charging connector

Great pictures

The Xperia® Z4v combines a 20.7 MP smartphone camera, a 25 mm wide angle lens and Sony Cyber-shot™ and Handycam™ technologies all in one device. Superior Auto mode senses the visual atmosphere, recognizes up to 52 scenes and optimizes the settings on your camera to best capture your surroundings. Gourmet mode is the latest addition to Superior Auto. It recognizes when you're taking pictures of food and sets the camera accordingly. Even in low light conditions, the Xperia® Z4v impresses with its F 2.0 aperture and ISO12800 value. With its Exmor RS™ for mobile sensor and HDR technology, the Xperia® Z4v helps you capture great pictures even when there is strong backlight.

Faster connections. High-speed browsing

When you're multi-tasking over Wi-Fi or a 4G network, the Xperia® Z4v delivers the speed you need. 4G LTE Cat 6 gives you a data transfer speed of up to 300 Mbps when you're on the move. A Snapdragon 810 Octa-core 64-bit processor lets you browse faster and get the optimal graphic experience.

Better sound

The Xperia® Z4v's Hi-Res Audio delivers crystal clarity and the full range of frequencies with a sound quality that does justice to the artist who recorded it.

Move with your game

With PS4™ Remote Play and a DUALSHOCK4® game controller connected to your Xperia® Z4v, you can play your favourite PlayStation4 games wherever you want in your own home.

Daring design

Xperia® Z4v continues the Sony design story with WQHD and built-in Qi and PMA wireless charging capabilities. – Simply place it on wireless chargers without the need to plug in and get ready for entertainment with the highest display quality at class. Weighing in at 162 grams, this 8.7 mm ultra thin and lightweight smartphone makes carrying and holding easy and comfortable. The micro USB charging connector is capless, so you can plug in your charging cable without having to open a protective cover.

Facts – dimensions, weight, performance and networks

Operating system	Google™ Android™ 5.0 (Lollipop)
Processor	2 GHz / 1.5 GHz Qualcomm MSM8994 Snapdragon 810 Octa Core 64-bit CPU
GPU	Adreno 430
Size	144.4 x 72.3 x 8.7 mm
Weight	162 grams
Available Colors	Black, White
SIM card	nano SIM
Main screen	
Colors	16,777,216 Color TFT
Resolution	WQHD 2560 x1440 pixels
Size (diagonal)	5.2 inches
Scratch-resistant	Chemical tempered glass + Anti-fingerprint coating
Input mechanisms	
Text input	On-screen QWERTY keyboard, Voice Input, Handwriting recognition
Touch screen	Capacitive
Touch gesture	Yes – multi-touch, up to 10 fingers supported
Memory	
RAM	3 GB
Flash memory	Up to 32 GB*
Expansion slot	microSD™ card, up to 128 GB (SDXC supported)
Memory card speed class	Class 10**
Memory card UHS speed class	Class 1**
Camera	
Camera resolution	20.7 MP
Digital zoom	8x
Clear image zoom	3x
Photo light	Yes – Pulsed LED
Video recording	Yes – 4K

Front Camera	Yes – Full HD 1080p for video chat and 5 MP for camera capture
ISO	ISO 3200 maximum in manual mode
	ISO 12800 maximum in Low Light mode for photo
	ISO 2000 maximum in Night scene mode for video
Minimum focus distance	120 mm
Sensors	
Accelerometer	Yes
Ambient light sensor	Yes
Barometer sensor	Yes
eCompass™	Yes
Game rotation vector	Yes
Geomagnetic rotation vector	Yes
Gyroscope	Yes
Step counter	Yes
Step detector	Yes
Significant motion detector	Yes
Proximity sensor	Yes
Networks***	
E6508	UMTS HSPA+ 850 (Band V), 900 (Band VIII), 1900 (Band II), 2100 (Band I) MHz GSM GPRS/EDGE 850, 900, 1800, 1900 MHz LTE Bands 2, 3, 4, 7, 13, 20 CDMA 1x EVDO 850 (BC0), 1900 (BC1) MHz
Data transfer speeds	
LTE Cat 6	Up to 50 Mbps (upload), up to 300 Mbps (download)
Battery performance	
Talk time (GSM)	Up to 17 hours****
Standby time (GSM)	Up to 590 hours****
Talk time (CDMA)	Up to 29 hours****
Talk time (UMTS)	Up to 20 hours****
Standby time (UMTS)	Up to 580 hours****
Standby time (LTE)	Up to 520 hours****
Music listening time	Up to 95 hours****
Video playback time	Up to 9 hours****

Battery/ Wireless Charging (Embedded)	3000 mAh minimum, Qi/PMA Wireless Charging
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* Memory comprises approximately 11.3 GB of firmware, plus 20.7 GB of “Internal storage” for music, pictures and movies, and downloaded applications and their data. For more details about memory, see “Memory in Android™ devices” on page 19.

** This device meets the minimum hardware requirements to support Class 10 / UHS Speed Class 1 Flash memory. Flash memory performance is dependent on the application and task being performed on the device. If you would like to know about your memory card, refer to the technical specifications that came with the card.

*** Product supports Band 20 but current live network doesn't support this Band as of today.

**** Values are according to GSM Association Battery Life Measurement Technique as performed in controlled laboratory conditions. Actual time may vary.

***** Values are according to CDMA Certification Forum CCF89 as performed in controlled laboratory conditions. Actual time may vary.

NOTE: The battery performance may vary depending on network conditions and configurations, and device usage.

NOTE: The performance metrics are all measured under laboratory conditions.

categorized feature list

 <p>Call</p> <ul style="list-style-type: none"> HD Voice* Video Call* Noise suppression Slow talk Smart call handling Talk equalizer Voice enhancement 	 <p>Messaging</p> <ul style="list-style-type: none"> Email Multimedia messaging (MMS) Text messaging (SMS) 	 <p>Applications</p> <ul style="list-style-type: none"> Small Apps Album What's new Xperia™ Lounge* Hangouts™* Lifelog Media Go™
 <p>Entertainment</p> <ul style="list-style-type: none"> 3D games Movie creator PlayMemories Reader mode* PS4™ Remote Play Sony Entertainment Network* 	 <p>Organizer</p> <ul style="list-style-type: none"> ActiveSync® Airplane mode Alarm clock aGPS* Battery STAMINA mode Calculator Calendar Contacts Document readers/editors GLONASS Queue background data Setup guide Sketch Stopwatch Timer 	 <p>Google</p> <ul style="list-style-type: none"> Gmail™* Google+* Google Chrome™* Google Play™* Google™ search* Google Voice™ Search* Google voice typing Google Maps™ for Mobile with Street view* Smart lock YouTube™*

		
<p>Camera</p> <ul style="list-style-type: none"> - Photo 20.7 MP camera with Sony Exmor RS™ for mobile image sensor**** 25 mm wide-angle***** Clear image zoom 3x Quick Launch***** Flash/Pulsed LED***** Flash/Photo light***** Red-eye reduction***** Touch capture Touch focus***** Superior Auto Image stabilizer Burst mode Face detection Geotagging Self-timer 8x digital zoom***** Smile Shutter™ Object tracking***** HDR Scene recognition White balance 5 MP Front-facing camera with Sony Exmor R™ for mobile image sensor**** - Video SteadyShot™ Video recording (4K)***** Front-facing camera (1080p)***** Geotagging 8x digital zoom***** Smile Shutter™ Object tracking***** HDR***** Self-timer Scene recognition***** White balance***** - Add-on applications AR Effect AR Fun Creative effects Multi-camera Sound Photo Timeshift video* Face in picture Sweep Panorama Style portrait Style editor 	<p>Music</p> <ul style="list-style-type: none"> 3D Surround Sound (VPT) Bluetooth® stereo (aptX®, A2DP) ClearAudio+ DSEE HX*** Dynamic normalizer Hi-Res Audio (LPCM, FLAC, ALAC, DSD) Low power audio playback*** PlayNow™ service* Music application S-Force Front Surround Hi-Res Audio via 3.5 mm audio jack and USB Stereo speakers 	<p>Connectivity</p> <ul style="list-style-type: none"> ANT+™ sport, fitness, health support Bluetooth® 4.1 wireless technology Cast screen DLNA Certified® HDCP Media Transfer Protocol support MHL 3.0 support + 5-pin support Micro USB support MirrorLink Native USB tethering NFC One Touch Setup Screen mirroring Smart Connect Throw USB charging USB High speed 2.0 support USB Host Wi-Fi® Wi-Fi® Hotspot functionality Wi-Fi CERTIFIED Miracast™

		
<p>Text Input</p> <p>Gesture input*</p> <p>Handwriting recognition</p> <p>On-screen QWERTY keyboard</p> <p>Predictive text input</p> <p>Voice input*</p>	<p>Display</p> <p>Glove mode</p> <p>Screenshot capturing</p> <p>Screen video recording</p> <p>Smart backlight control</p> <p>Smart screen rotation</p> <p>Super-vivid mode</p> <p>X-Reality™ for mobile</p> <p>TRILUMINOS™ Display for mobile</p>	<p>HW</p> <p>3.5 mm audio jack Digital Noise Cancelling (DNC)</p> <p>IPX5 and IPX8 (waterproof)**</p> <p>IP6X (Dust tight)</p> <p>Live Color LED</p>

* This service is not available in all markets. HD Voice and Video Call require compatible calling plan.

** The Xperia® Z4v is waterproof and protected against dust, so don't worry if you get caught in the rain or want to wash off dirt under a tap, but remember: all ports and attached covers should be firmly closed. You should not: put the device completely underwater; or expose it to seawater, salt water, chlorinated water or liquids such as drinks. Abuse and improper use of device will invalidate warranty. The device has Ingress Protection rating IP65/IP68. For more info, see www.sonymobile.com/waterproof. Note the Xperia® Z4v has a capless USB port to connect and charge. The USB port needs to be completely dry before charging.

*** This feature is only available when you play music using the Music application.

**** This feature is only supported by the front camera.

***** It is not supported for front Camera.

Technologies in detail

The information presented in this section is a general overview of the technology incorporated into the product. However, hardware and software levels of compliance to standards and specifications vary between products and markets. For more information, contact Sony Mobile Developer World or the relevant Sony representative.

Accessibility and Usability

Accessibility and Usability	
Talkback*	Yes
Captions*	Yes
Magnifications gestures*	Yes
Large Text*	Yes
High Contrast Text*	Yes
Power button ends call*	Yes
Auto-rotation*	Yes
Speak Passwords*	Yes
Accessibility Shortcuts*	Yes
Text – to – Speech*	Yes
Touch and hold delay*	Yes
Color Inversion*	Yes
Color correction*	Yes

* Android Lollipop feature. Subject to possible change in future releases of Google™ Android™.

Device-to-device communications (local)

ANT+™ wireless technology

Connectable devices	ANT+™ devices require the download of a supporting application
Frequency band	2.4 GHz
Data transfer rate	Up to 60 Kbps
Encryption	AES-128
Topologies	One to Many, Many to One, Peer to Peer, Star, Practical Mesh

Bluetooth® wireless technology

Bluetooth® profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v1.3 Device Identification Profile v1.3 Generic Access Profile Generic Attribute Profile Client/Server over LE Handsfree Profile v1.6 (Wide band speech) Headset Profile v1.2 HID over GATT Profile v1.0 Human Interface Device Profile, Host role v1.0 Messaging Access Profile v1.1 Object Push Profile v1.2 Personal Area Networking Profile v1.0 Phonebook Access Profile v1.1 Serial Port Profile v1.2
Core version and supported core features	Version 4.1 Bluetooth Low Energy
Other supported features	aptX® CD quality audio streaming over Bluetooth® LDAC High sound quality audio streaming over Bluetooth®
Connectable devices	Products that support at least one of the Bluetooth® profiles listed above. Bluetooth® 4.1 accessories generally require the installation of a supporting application.

More information:

www.sonymobile.com/developer

www.bluetooth.com

Wi-Fi®

Supported standards	IEEE 802.11a/b/g/n/ac MIMO and Wi-Fi® Wi-Fi Direct™, Wi-Fi Protected Setup, Wi-Fi CERTIFIED Passpoint™, Wi-Fi CERTIFIED Miracast™
Connectable devices	Wi-Fi® access points Wi-Fi Direct™ compatible devices
Frequency band	2.4 GHz/5 GHz
Data transfer rate	Up to 867 Mbit/s
Security	Open Authentication Shared Authentication EAP-SIM EAP-AKA EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP 64 bit, WEP 128 bit, TKIP and CCMP (AES)
Power save	WMM-UAPSD
QoS	WMM, WMM Power Save, Admission Control

DLNA Certified® (Digital Living Network Alliance)

Supported Device Classes	<p>M-DMS – Mobile Digital Media Server Media Types: image, video and music Summary: The digital media server exposes the media files in your device to a Wi-Fi® network. The files can then be accessed from other DLNA Certified clients or Sony devices which support home networks.</p> <p>M-DMP – Mobile Digital Media Player Media Types: image, video and music Summary: Play content stored on another device, for example, a server or a PC, directly on your device.</p> <p>M-DMC – Mobile Digital Media Controller Media Types: image, video and music Summary: A remote controller that locates media files and plays them on your device.</p> <p>+PU+ Media Types: image, video and music Summary: Play media in your device on another device, such as a TV or a PC using 2 box push technology. +PU+ is integrated in the Album, Videos and Music applications.</p> <p>+DN+ Media Types: image, video and music Summary: Download content stored on another device, for example, a server or a PC, and play the downloaded content directly on your device.</p> <p>+UDO+ Media Types: image, video and music Summary: The digital media server also has the capability to get uploaded files from other DLNA Certified® clients.</p>
Supported Bearers	Wi-Fi® Wi-Fi Direct™
DRM Support	Yes (DRM type if support) / No

Messaging

MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

Email

Bearer type (IP)	GPRS, EGPRS, UMTS, LTE, Wi-Fi®
Character sets	BIG5 Traditional Chinese GB18030 ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese US-ASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS) IMAP4 IDLE (RFC2177)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and STARTTLS
HTML mail	Yes (read only)

More information:

www.sonymobile.com/developer

www.openmobilealliance.org

Positioning – location based services

Supported standards:

- OMA Secure User Plane Location (SUPL) v2.0
- 3GPP™ Control Plane location (incl. Emergency location)
- Qualcomm® GPSOneXtra™

Supported satellite systems:

- GPS
- GLONASS

NOTE: When needed, a combination of all the available satellite systems are automatically used to achieve a robust and accurate fix.

Provisioning (OMA CP)

OMA CP version 1.1

Multimedia (audio, image and video)

Audio Playback	Decoder format	Supported in file format
	AAC (AAC-LC, AAC+, eAAC+, AAC-ELD)	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a), ADTS (.aac)
	ALAC	MP4 (.m4a)
	AMR-NB, AMR-WB	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a), AMR (.amr, .awb)
	DSD	DSF (.dsf), DSDIFF (.dff)
	FLAC	FLAC (.flac), Matroska (.mka)
	MIDI	SMF (.mid), XMF (.xmf), Mobile XMF (.mxmf), OTA (.ota), RTTTL (.rtttl), RTX (.rtx), iMelody (imy)
	MP3	MP3 (.mp3)
	PCM	WAV (.wav), AIFF (.aiff)
	Opus	Opus (.opus), Matroska (.mkv)
	Vorbis	OGG (.ogg), Matroska (.mkv)
	WMA	ASF (.wma)
Audio Recording	Encoder format	Supported in file format
	AAC (AAC-LC, AAC+, AAC-ELD)	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a)
	AMR (AMR-NB, AMR-WB)	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a), AMR (.amr)
Image Playback	Decoder format	Supported in file format
	BMP	BMP (.bmp)
	GIF	GIF (.gif)
	JPEG	JPEG (.jpg, .jpeg)
	PNG	PNG (.png)
	WebP	WebP (.webp)
Image Capture	Encoder format	Supported in file format
	JPEG	JPEG (.jpg)

Video Playback	Decoder format	Supported in file format
	MPEG-4	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v), Matroska (.mkv), AVI (.avi), Xvid (.xvid)
	H.263	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v)
	H.264	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v), Matroska (.mkv)
	H.265	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v)
	VP8	WebM (.webm), Matroska (.mkv)
	VP9	WebM (.webm)
Video Recording	Encoder format	Supported in file format
	MPEG-4	3GPP (.3gp), MP4 (.mp4)
	H.263	3GPP (.3gp), MP4 (.mp4)
	H.264	3GPP (.3gp), MP4 (.mp4)
	VP8	WebM (.webm)
Audio/Video Streaming	Streaming transport	HLS HTTP progressive streaming RTSP
DRM	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	AC-DRM Marlin DRM Widevine Level 1

Synchronisation (OMA DS, EAS, Google Sync™)

OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12

Microsoft® Exchange ActiveSync® protocol version 12.1

Microsoft® Exchange ActiveSync® protocol version 14

Microsoft® Exchange ActiveSync® protocol version 14.1

Google Sync™

Related information:

www.sonymobile.com/developer

Web browser

Google Chrome™ for Android™ is pre-installed.

Related information:

<https://play.google.com/store/apps/details?id=com.android.chrome>

Memory in Android™ devices

To use Android devices efficiently, users should be aware of the different types of device memory. This knowledge is important in order to understand, for example, where data such as music, photos and videos is saved; how many apps can be downloaded from Google Play™; and how photos can be copied to a PC.

Information regarding memory presented in this section may be useful to developers when optimising applications for mobile devices.

Generally, all Android devices share the same basic memory setup. What differs is how much memory is available to you via the different types of memory, and whether your device uses an external SD card or an internal memory chip. Any information specific to the particular device model described in this White Paper is noted as such.

Types of memory

The types of memory described and numbered below are consistent with the terminology used in Sony mobile device menus and in other content relating to 2015 Xperia™ devices:

1. **Dynamic Memory** (also known as RAM) is used by applications that run when the device is turned on. The amount of Dynamic Memory influences how many applications and operating system services can run at the same time. The Android operating system automatically closes applications and services that are not being used.

However, such automatic functionality has limits. For example, if a lower amount of free RAM is available to applications after a new release of the operating system (due to increased capabilities in the system), device speed will eventually be impacted. This is the main reason that a device cannot be indefinitely upgraded to newer releases of Android™.

If you experience problems with RAM, for example, if the device runs slower than usual or if the Home application restarts frequently when you leave an application, you should minimize the use of apps that run all the time. Social networking apps that connect and update their data online and animated backgrounds are examples of apps that are always running and affect RAM performance. To minimize RAM issues, you could also consider using a static wallpaper instead of a live wallpaper.

To see which apps and services are currently active, go to **Settings > Apps to Settings> Application manager**. You should have at least 50 MB, and ideally 100 MB or more, of free RAM to avoid slowdowns and application restarts.

You should also be aware that if you update the device to a later Android release, the load on the built-in Dynamic Memory will increase due to the addition of more features. As a result, the device may run slower after an update.

The Xperia® Z4v has 3 GB of RAM available to the Android OS and any installed applications. 200 MB of the total RAM is in use during normal operation when the user starts using the device out of the box.

2. **System Memory** (also known as “System partition” or “/system”) is used for the Android OS and for most applications that are pre-loaded from the factory. This type of memory is normally locked, and can only be changed through a firmware upgrade. There is usually some free space available in this section of memory. However, since it is locked, you cannot save apps, photos or any other content to this memory. System Memory is reserved for future firmware upgrades, which almost always need more memory than the original firmware. You cannot see or influence the use of this memory.

3. Internal Storage is referred to as "working" memory. It can be compared to the C: drive on a PC or to the startup disk on a Mac.

This type of memory is used to store all application downloaded from the Google Play™ Store (and other sources) as well as their settings and data (such as emails, messages and calendar events, for example). All applications have an allocated area for application data. Memory dedicated to an application is inaccessible to other applications.

Some game applications also store content such as game music and game level information outside their own designated area. In most cases, an application can choose to save its data in a location of its own choosing (outside the protected application settings area). Generally, such content is not deleted when an application is uninstalled; it must be removed manually by connecting the device to a computer with a USB cable, or by using a file manager application.

Internal storage is also used for all added user content. For example, photos taken using the device's camera, media files downloaded from the Internet and file transfers are stored in this area. Typical user content includes:

- photos
- movies
- music
- Email attachments

Internal Storage will tend to fill up as a result of normal usage. Devices with a large initial Internal Storage can handle more applications and store more user content.

If the Internal Storage starts to get full, the device slows down, and in some cases it might no longer be possible to install more apps. You should always ensure that you have at least 100 MB of free Internal Storage. If not, you should consider removing some apps that you seldom use, or move content that you do not frequently access to external storage.

You can see approximately how much Internal Storage is free in **Settings > Storage > DEVICE MEMORY**. You can also view more details about how much memory is used by applications under **Settings > Apps to Settings> Application manager**. In the Xperia® Z4v, about 20.7 GB of Internal Storage is available out of the box.

Please note that in Sony Mobile 2015 products, "Internal Storage" is now the combination of what was previously known as "Device Memory" or "Phone Memory" (for applications and their data – also previously known as "/data") and "Internal Storage" (for user's content – also previously known as "/sdcard"). The changes in Internal Storage were made so that memory usage could be more flexible and to allow encryption of user content.

Memory card slot

Some products include both a large internal memory and a built-in memory card reader. Android manages devices with a built-in memory card reader and internal memory differently from a device that includes only a built-in memory card reader.

Since most applications expect only a single location for storage, such applications will not generally allow you to SAVE anything to the memory card (i.e., they do not offer the option to choose a storage location). However, some applications (for instance, the Sony Mobile "Camera" application) may actually allow you to do so. Other applications, for example, backup applications such as the Sony Mobile "Memory" application, will by definition be configured to copy content from the Internal Storage to the external SD card.

On the other hand, when it comes to reading from an external SD Card, you will be able to access content (for example, videos, photos and music) on a memory card inserted in this slot without any special consideration since the Android system searches all available memory for content. Therefore, such products may be regarded as supporting a fourth type of memory, called “External Card” or “SD Card”.

4. **SD Card** (known as “/ext_card” from a programmer’s point of view, or by other names in other Android products) is the name for the removable SD memory card in all 2015 Sony Mobile products. As described in the previous section, this External Card memory is generally more limited in that any application can read from it, but many applications cannot save to this card. Only a few applications, including backup applications and file manager applications, have the capability to save to this card.

Backing up data to different memory types

Generally, you should not save photos, videos and other personal content solely on the internal memory of a device. If something should happen with the hardware, or if the device is lost or stolen, the data stored on the device’s internal memory is gone forever.

In a device where an SD card reader is the main memory, it is relatively easy to take the card out and copy all content to a PC or Mac, or to an entertainment device with a memory card slot. In a product featuring Internal Storage as the main memory, it is not possible to physically remove the memory. Instead, any critical or high-value content must either be copied to an external SD card by a special backup application, transferred to remote storage over a network (mobile or Wi-Fi), or to a computer via a USB cable.

To facilitate the transfer of data via a cable, the Xperia® Z4v supports Media Transfer Protocol (MTP), which makes it possible to easily transfer content back and forth between your device and a Windows® PC. For Apple™ Mac® computers, a special application called Sony Bridge for Mac is available with built-in support for MTP. This application can be downloaded from the Xperia® Z4v support page.

Note that you do not need to back up or make a copy of applications that you have downloaded from the Google Play™ Store. They can normally be downloaded again after you have set up your Google account to work in a new device (or in a device where the memory has been completely erased).

Note 1:

Some Android devices, including Sony Mobile devices from 2012 and Sony Ericsson devices from 2011 and earlier, do not use a single “Internal Storage” for both applications (and their data) and user content. Instead, these devices use either an external SD card for user content, or a corresponding area of internal memory to reproduce the functionality of an SD card. In such devices, there is a fixed limit between the application area (“/data”) and the user content area (“/sdcard”), with the result that user content can build up and reach this limit. When the user content reaches this limit, no additional data can be added using any application. For example, the camera application would no longer be able to capture additional photos even if a considerable amount of free space was available in the application area. This limit also applies to the application area. Downloading and installing new applications would not be possible even if there was enough free memory in the user content area.

In contrast, Sony Mobile’s memory integration solution makes it possible to preserve user content in this situation. Therefore, when performing a Factory Data Reset, the default action will still be to only remove applications and their data, and an option box must be checked if all content is to be removed as well (as might be desirable when selling the device second-hand).

Note 2:

For a developer, it is important to note that from a programming point of view the location names used to refer to the different memory areas described in Note 1 are still valid, i.e., the area used for applications (“/data”) is still present, as is the area used for content (“/sdcard”).

In reality, “sdcard” is a “symbolic link” to “/data/media”. However, from inside an Android application, “/sdcard” can still be used. For example, you can use “sdcard/DCIM/100Android” to find all camera images. The continued use of “/sdcard” to access the content area ensures compatibility across different products and Android releases in this regard.

Trademarks and acknowledgements

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